Applied Physics Laboratory
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Subj: ONR Grant N00014-95-1-1300

Encl: (1) Final DURIP Report, "High Resolution Benthic Acoustic Measurement System"

Enclosed please find three copies of report that completes the subject grant requirement for a final technical report.

Darrell R. Jackson

cc: ONR Administrative Grants Officer (June Hawley), 1 copy + Form 298
Director, Naval Research Laboratory, Code 2627, 1 copy
Defense Technical Information Center, 2 copies + Form 298
ONR Code 00C1 (Mr. William F. MCCarthy) 1 copy
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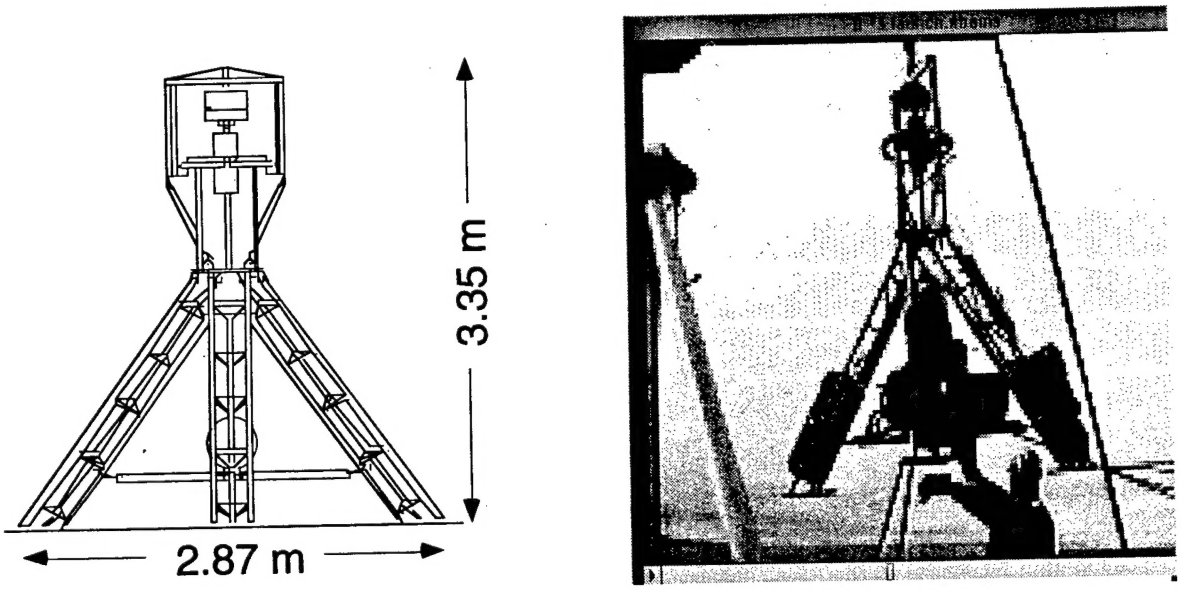
APPLIED PHYSICS LABORATORY, UNIVERSITY OF WASHINGTON

FINAL REPORT
DURIP Project:
High-Resolution Benthic Acoustic Measurement System

A new sonar system has been constructed and successfully fielded. The system, designated as the Accelerated Benthic Acoustic Measurement System (XBAMS), is an autonomous, bottom-mounted, circularly-scanning sonar that permits remote observation of benthic biological and physical processes over a large area (100 m diameter circle) and long times (weeks to months) in the littoral zone.

The figure below shows XBAMS. The sonar mounted on the top of the tripod operates at 300 kHz with horizontal beamwidths of about 1 degree. The system completes a scan of 360 steps in 6 minutes. This sampling rate makes it possible to monitor benthic biological activity without aliasing problems encountered with the older BAMS system. XBAMS can be deployed in water depths as shallow as 15 meters with a 2 ton crane.



Left side shows an engineering drawing of XBAMS. The right side shows XBAMS as it is being deployed off Northern California in conjunction with the STRATFORM project.

XBAMS was deployed off the coast of California in about 60 meters of water in June 1996 during the STRATAFORM project. It successfully captured over 200 acoustic scans during its one month deployment.

Darrell R. Jackson and Kevin L. Williams

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13. ABSTRACT *(Maximum 200 words)*

A new sonar system has been constructed and successfully fielded. The system, designated as the Accelerated Benthic Acoustic Measurement System (XBAMS), is an autonomous, bottom-mounted, circularly scanning sonar that permits remote observation of benthic biological and physical processes over a large area (100 m diameter circle) and long times (weeks to months) in the littoral zone.

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